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Efficacy and Safety of Transeptal Steroid Injections

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Periocular steroid injection is an effective treatment for uveitis that minimizes systemic side effects of corticosteroids. Concerns about globe perforation and efficacy have led some to recommend a technique first popularized by Schlagel: injection with a long 25-gauge needle along the surface of the globe in the superotemporal sub-Tenon's space, after application of topical anesthetics. A 'sweeping' motion of the needle after entry into Tenon's space is then used to confirm that the globe has not been impaled. However, in our experience, patient acceptance of this periocular injection technique is considerably lower than that of the technique using a short 27-gauge needle inserted through the orbital septum region just superior to the inferior orbital rim. When performed properly—by slightly elevating the globe with the nondominant index finger and making a small sweeping motion after penetration of the septum to ensure that the sclera has not been impaled on the tip of the 27-gauge needle—this method can be used effectively for repeated injections, even in children as young as six years old. Some suggest that this technique may be less effective and more prone to causing steroid-induced increases in intraocular pressure.

To examine the efficacy and safety of transeptal corticosteroid injections, we evaluated intraocular pressure responses and therapeutic outcomes following transeptal periocular steroid injections in a well-characterized, closely monitored cohort of patients with pars planitis, as one of the most common indications for periocular steroid injections.

We identified 20 patients (eyes) with no prior history of glaucoma and minimal anterior chamber inflammation, and therefore no need for topical or systemic steroids at the time of periocular injection for active pars planitis. These patients received 40 mg of triamcinolone acetonide mixed with 0.5 mL of 2% lidocaine without epinephrine transeptally as described above. Dilated funduscopy was performed after the injection to assess for inadvertent globe perforation. Their response to therapy—assessed by Snellen visual acuity, pars plana inflammation, and cystoid macular edema—as well as serial intraocular pressure profiles, the main adverse effect of the injections, were evaluated during a prolonged follow-up period.

The average age of the patients was 31.7 years (range, 11–68 years). Twelve patients (eyes) received a single injection and 8 received another injection over the three-month period following the first injection. Three patients had received a prior steroid injection before being included in this study. The mean increase in intraocular pressure at two weeks following injection was 1.1 mm Hg; at six weeks

post-injection, the mean increase was 1.3 mm Hg. At three months post-injection, there was an average reduction in IOP of 0.3 mm Hg. Snellen visual acuity improved by an average of 2.1 lines at the six-week and three-month visits. Seventy-nine percent of patients achieved visual acuity of 20/40 or better, and this was maintained at the three-month follow-up visit; the improvement in acuity was secondary to a reduction in cystoid macular edema. No cases of globe perforation were observed in this study.

We concluded that the transeptal route of periocular steroid administration in patients with intermediate uveitis and no history of steroid-induced intraocular pressure elevation is both safe and effective, without evidence of a significant risk of increased intraocular pressure, in contrast to reports of this complication following posterior sub-Tenon's administration.

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